The influence of bio stimulators on some new apple cultivars

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USAMV BUCUREȘTI
CENTRUL DE CERCETARE PENTRU STUDIUL CALITĂȚII PRODUSELOR AGROALIMENTARE

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Biological Material

- In the framework of the project, 3 apple selections were analyzed in the Faculty of Horticulture Experimental Field in Bucharest, namely: I3G5-049-PTE 9, I3D7-123-PTE 10, and Ariwa.
- Research and observations were carried out in the field and in the Laboratory of Integral Fruit growing in the Research Center for Studies of Food Quality and Agricultural Products.

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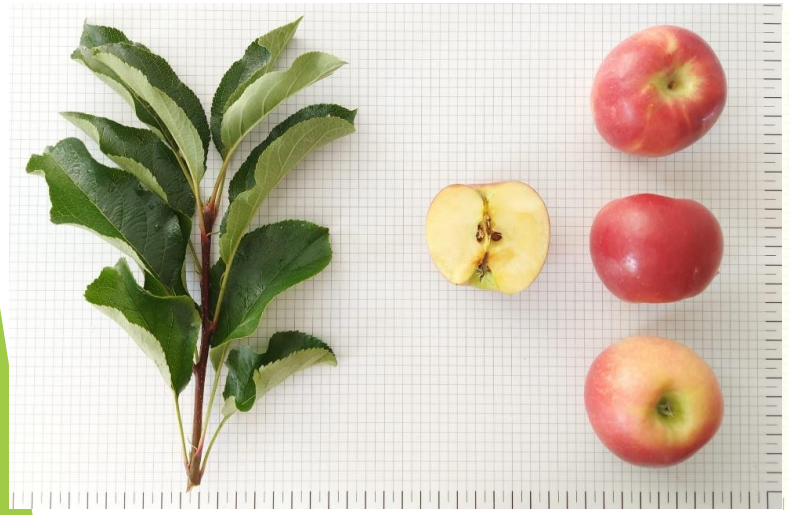
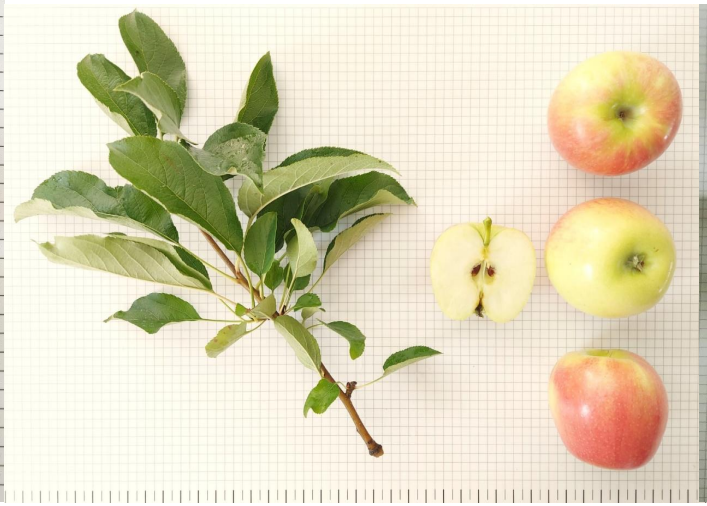
Apple selections in the Experimental Field of Faculty of Horticulture

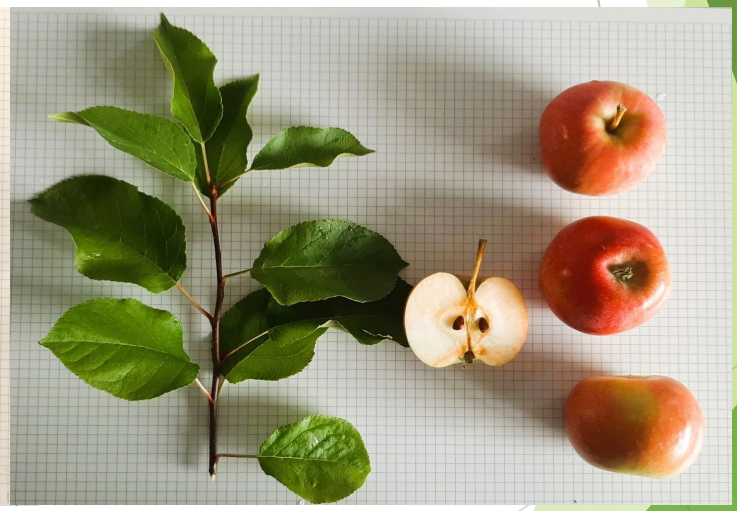
Selection I3G5-049-PTE9



Selection I3D7-123-PTE10



Ariwa



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Daymsa biostimulators used in the Experimental Field

For a good plant defense mechanism, to improve the state of nutrition, growth and development of trees, high quality ecological products were applied.

Treatment scheme applied between April and August 2022

Product	Doze	Date
Raiza Mix	4l/ha (1,56 l/ 3200 mp)	12th of Apr.22
Naturamin WSP	3 kg/ha 716 g / 3200 mp	12 th of Apr.22
Cytoplant -400	1.5 /ha 0,384 l /3200 mp	21 th of Apr.22
Soillum	1-2 kg / ha (321 g /3200 mp)	27 of Apr.22
Cytoplant -400	1.5 l/ha (0.468 l/ 3200 mp)	02 nd May 22
Terrenova	10-15 l /ha (3 l/3200 mp)	18th of May 22
Naturvital Plus	2-3 l/ha (0,950 l / / 3200 mp)	18 of May .22
Soillum	1-2 kg / ha (321 g / 3200 mp)	25th of May 22
Raiza Mix	3-4 l/ha (0,95 l / 3200 mp)	01 st of June.22
Naturfruit	3- 4 l /ha (0,960 l / 3200 mp)	18 th of June 22
Efical	1.1 kg /3200 mp	23th of June 22
Copstar	1 l / 3200 mp)	10th of July 22
Naturamin WSP	3 kg /ha (1 kg/ 3200 mp	14 th of July 22
Naturmix L	2 l/ ha (0,5l / 3200 mp)	27th of July 22
Terrenova	10-15 l/ ha (4,5 l /3200 mp	01 st of Aug.22
Naturmix Mg	2 l/ ha (0,5l / 3200 mp)	09 th of Aug.22

Comparison between control and treated fruits

Selections	Total soluble solids (Brix) (average)	Fructose (%) (average)	Glucose(%) (average)	Total soluble solids (Brix) Control	Fructose(%) (average) control	Glucose (%) (average) control
I3G5-049-PTE9	**14.69**	**14.97**	**14.99**	**11.66**	**11.17**	**11.93**
I3D7-123-PTE10	**13.67**	**13.7**	**13.96**	**13.13**	**13.4**	**13.34**

Selection I3G5-049-PTE9 treated with Daymsa biostimulators showed higher values on Total soluble solids (Brix), fructose and glucose content (23%) than the control.

Comparison of fruit weight of selection treated with Daymsa and control at I3G5-049-PTE9

	Selection I3G5-049-PTE9	Selection I3G5-049-PTE9 (Control)
Average fruit weight (g)	**145**	**121,3**

In the selection I3G5-049-PTE 9 treated with Daymsa, there was a 19% increase in fruit weight compared to the control.

The Ariwa cultivar

Cutivar	Firmness (kg f/cm²)	TSS (Brix)	Fructose %	Glucose %	H (mm)	Diameter (mm)	Shape index	IAD	Fruit weight (g)
Ariwa (control-IPM)	5,05	15,9	15,22	15,18	48,95	58,19	0,81	0,59	92,25
Ariwa R41 (treated - organic)	6,41	17,6	17,67	17,7	62,62	66,53	0,95	0,69	114,4
Ariwa R41(control - organic)	5,86	16,25	15,83	16,27	60,95	64,36	0,95	0,62	99,22

The difference between treated and untreated fruits (visual)

Fruits treated with Daymsa biostimulators

Fruits not treated with Daymsa biostimulators

From the control plot of the I3D7-123-PTE10 selection, non-compliant fruits, respectively with pests (*Cydia pomonella*), were harvested.

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Fruits not treated with Daymsa products

The Ariwa cultivar, not treated with Daymsa biostimulators, presented the disease (Bitter Pit), or the black spot of the fruits. These trees showed deficiencies (lack of calcium and microelements).
The fruits cannot be stored in cold rooms because they could easily take other diseases from the storage.

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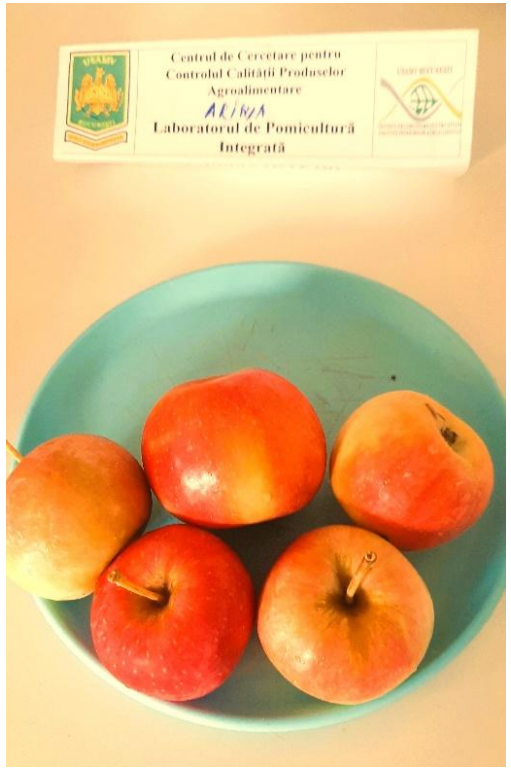
Apple selections treated with Daymsa, kept in the cold storage for 30 days



Selections treated with Daymsa that were kept in cold storage (over 30 days), and after laboratory analyzes it was found that the fruits:

- ✓ have an attractive commercial appearance: the shape, size, and color of the respective variety;
- ✓ have a caliber over 61 mm and weight between 110 g and 150 g;
- ✓ the pulp showed no damage.
- ✓ presents parameters/indices of firmness, glucose, fructose, and titratable acidity similar to those harvested a month ago.

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Observation /Remarks

- In observation courses, treatment was applied according to the detailed scheme.
- Significant differences in the fruit weight treated with Daymsa organic products were observed.
- Also, the treated plants showed a lower degree of bacteriosis attack than those in the control group.
- Another important observation concerned the ripening of the fruits, the cultivars taken in the treated experiment showed significant differences regarding the ripening period (shorter in the case of the treated ones than in the case of the control).
- We recommend the continuation of observations, an important stage of the effective use of Daymsa products. It can be analyzed in the year following application, respectively the degree of differentiation of the flower buds correlated with the number of flowers and the number of fruits attached/tree.

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Thank you for your attention!

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